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10/083,313	02/25/2002	Sundara Murugan	P4524	5495

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EXAMINER	
TSEGAYE, SABA	

ART UNIT	PAPER NUMBER
2419	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/083,313	MURUGAN, SUNDARA	
	Examiner	Art Unit	
	SABA TSEGAYE	2419	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-22 and 24-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12-22 and 24-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed 07/16/08. Claims 12-22 and 24-35 are pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 12-22 and 24-35 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Referring to claim 12, line 7, the claim states that …APS client modules executing on "**all others of the multiple processor**." This does not agree with the specification. Instead, the instant specification disclose that APS components over multiple processors (see page 7, lines 6-11).

Referring to claim 24, lines 11-12, the claim states that mirroring the state information form "**the APS server module** to **the plurality of communication processors**." This does not agree with the specification. Instead, the instant Application discloses that mirroring current

configuration and state information of **the primary router interface** to the processor supporting the designated **backup router interface** (page 15, line 24-page 16 line 2).

Dependent claims are also rejected for the same reasons since they depend from a rejected base claim.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 13, 14 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13, the phrases "the data-packet-network" and "the internet" lack antecedent basis; and the claim is missing a period therefore it is an incomplete claim.

Claim 14 depending from claim 13 and contains the same problems.

Claim 28, the phrase "the internet" lacks antecedent basis.

Claim Rejections - 35 USC § 102

6. Claims 12-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Simons et al. (US 6,332,198 B1).

Regarding claim 12, Simons discloses, in Figs 1, 5, 29, 33A, a distribute processor packet router (10), comprising: a plurality of communicating processor (12, 16a-16n) each supporting a plurality of external communication interfaces (see fig. 1)

an APS server module (14, 20, 28) executing on a first one of the multiple processors (12) managing communication and distributing configuration and state information (column 7, lines 25-41) regarding groupings of communication interfaces (column 40, lines 30-55); and

APS client modules (18a-18n, 22a-22n) running on all others of the multiple processors (16a-16n), the APS client modules monitoring interface state information, reporting to the APS server application, and negotiating with other APS client modules (column 7, lines 25-41; see also figs. 29 and 33; column 44, line 30-61);

characterized in that the APS server module keeps all client modules current with the configuration and state information, such that in a failure of and interface, switching to a backup is accomplished by a client module in a minimum time because all necessary configuration and state information regarding groupings of communication interfaces is locally accessible (fig 33a;column 40, lines 30-55; column 42, lines 39-63; column 43, lines 1-8; Fig. 29 also shows that each primary line card (16a-c) could execute more or less than two backup (for example, backup ATM 468-471) processes).

Regarding claim 13, Simons discloses wherein the data-packet-network is an internet network (column 12, lines 50-67).

Regarding claim 14, Simons discloses the APS software suite wherein the plurality of primary interfaces comprises an APS grouping of interfaces connected to a SONET network (column 45, line 56-column 46, line 29).

Regarding claim 15, Simons discloses the distributed processor router wherein the APS software suit includes a server application, a server-client application, and a client module (column 7, lines 26-41).

Regarding claim 16, Simons discloses the distributed processor router wherein the server application runs on a control card, and the server-client application as well as the client module runs on a line card (column 7, lines 26-57).

Regarding claim 17, Simons discloses the distributed processor router wherein indication of an event is an APS signal received through the target interface on the backup processor (column 35, line 58-column 36, line 27).

Regarding claim 18, Simons discloses the distributed processor router wherein the received APS signal indicates one of the failure or severe degradation of the target interface (column 35, lines 36-47; column 36, lines 28-49).

Regarding claim 19, Simons discloses the distributed processor router wherein the received APS signal indicates an administrative request for interface relocation (column 39, lines 10-60).

Regarding claim 20, Simons discloses the APS software suite wherein the configuration and state information generic to a primary interface for relocation is mirrored to the client

supporting the backup interface for the purpose of initializing and activating the backup interface to function as the primary interface (column 27, lines 51-67).

Regarding claim 21, Simons discloses the APS software suite wherein the distributed processors communicate with each other through a network of fabric cards implemented within the router (column 48, lines 1-11; column 50, lines 62-67).

Regarding claim 22, Simons discloses the APS software suite wherein all communication exchanges between the distributed APS components follow a message sequence scheme wherein each request and response has a sequence number (column 11, lines 31-47).

Claim Rejections - 35 USC § 103

7. Claims 24-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simons et al. (US 6,332,198) in view of Zadikian et al. (US 6,724,757).

Regarding claim 24, Simons discloses a method for relocating a primary router interface to a designated backup router interface using an APS suite distributed over multiple communicating processors of a distributed processor data router comprising steps of:

a) providing a plurality of communicating processors each supporting a plurality of external communication interfaces and each including an APS client module (see figs. 1 and 29);

b) executing and APS server module on a first one of the plurality of the communicating processors managing compunction and distributing configuration and state information regarding

groupings of the external communication interfaces to the balance of the communication processors (column 40, line 24-column 41, line 19);

c) mirroring all current configuration and state information, from the APS server module to the plurality of communicating processors required to perform switchover to a at least one backup interface of the groupings of interfaces according to APS protocol (column 27, lines 51-67; column 42, lines 49-67);

d) receiving indication of a requirement to initiate an APS switchover from the primary router interface to the at least one backup interface (column 35, line 58-column 36, line 49; column 42, lines 60-67);

e) determining if the at least one backup router interface is available from the primary router interface to the at least one backup interface (column 35, line 58-column 36, line 49; column 40, line 24-column 41, line 19); and

f) activating the backup interface using the mirrored configuration and state information (column 27, lines 51-67).

Further, Simons discloses that a level of hot state (software backup) backup is inversely proportional to the resynchronization time, that is, as the level of hot state backup increases, resynchronization time decreases (column 42, lines 4-11; column 1, lines 33-57). Furthermore, backup line card 16n executes backup processes to provide software backup. It is preferred that line card 16n be at least partially operational and ready to use the backup processes to quickly begin performing as if it was a failed primary line card (column 42, lines 39-52).

Fig. 29 shows that each primary line card (16a-c) could execute more or less than two backup (for example, backup ATM 468-471) processes (claimed "the plurality of primary

interfaces comprise and APS grouping of interfaces connected to a SONET network, and the APS grouping of interfaces is physically supported on one processor").

However, Simons does not expressly disclose that an APS protocol performs a switchover within a 50-millisecond time window.

Zadikian teaches a router that supports the restoration of a majority of network failures within **less than 50** ms (column 10, lines 48-55).

It would have been obvious to one ordinary skill in the art at the time the invention was made to add a method that switchover within 50 ms time window, such as that suggested by Zadikian, in the method for supporting multiple redundancy of Simons in order to minimize synchronization time and to provide a fast restoration time.

Regarding claim 25, Simons discloses the method comprising an additional step e) for reporting any changed route results to a task manager responsible for distributing updated route tables to processors (column 28, lines 1-67).

Regarding claim 26, Simons discloses the method comprising an additional step for updating a forwarding database according to a switchover made (column 28, lines 1-67).

Regarding claim 27, Simons discloses wherein the distribute processor data router is connected to and operating on a data-packet-network at the time of interface relocation (column 12, lines 50-67).

Regarding claim 28, Simons discloses wherein the data-packet-network is the internet network (column 12, lines 50-67).

Regarding claim 29, Simons discloses when the primary router interface and groupings of interfaces are connected to a SONET network (column 45, line 56-column 46, line 29).

Regarding claim 30, Simons discloses the method wherein in step d) the indication is received at the primary interface (column 35, line 58-column 36, line 27).

Regarding claim 31, Simons discloses the method wherein in step d) the indication is received at the backup interface (column 35, lines 36-47; column 36, lines 28-49).

Regarding claim 32, Simons discloses the method wherein in step d) the indication is of the form of an administrative request (column 39, lines 10-60).

Regarding claim 33, Simons discloses the method wherein in step e) determination of availability of the backup interface partly depends on a priority state of the primary interface requiring backup (column 15, line 66-column 16, line17).

Regarding claim 34, Simons discloses the method wherein in step e) the backup interface is physically located on a processor separate from that of the primary router interface (fig. 1, 16a-16n; fig. 35, 546e).

Regarding claim 35, Simons discloses the method wherein in step c) the configuration and state information is selected from a table of such sets of information stored on the processor hosting the backup router interface (column 27, line 51-column 28, 65).

Response to Arguments

8. Applicant's arguments with respect to claims 12-22 and 24-35 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues (Remarks, page 11) "*as shown in accompanying Fig. 33A of Simons that connection data "CD" is not stored locally on each device. If card 16n were to fail in Simons data communication would fail in a backup process*." Examiner respectfully disagrees. Simons clearly discloses a distributed redundancy system without using backup line card 16n. As shown in fig. 29, each primary line card (16a-16c) could execute more or less than two backup. For example, ATM controller 136a of line card 16a receives records 450-453 (*indicate that ATM controller 136a is to start four primary instantiations of 464-467*) and 458-461 (*indicate that ATM controller 136a is to start four backup instantiations of ATM 468-471 as backup for primary instantiations on LID 32, line card 16c*) from group table 108 (see column 40, lines 24-59).

Further, Applicant argues that "*Simons fails to teach or suggest that each card is capable of bidirectional communication with each other*." Examiner respectfully disagrees. Fig. 29, shows bidirectional communication between 16a-16c. For example, NS 220b connected to NS

220c and 220d; ATM 464 is connected to ATM 476; ATM 472 is connected with ATM 484 and ATM 480 is connected with ATM 468. Also see column 39, line 62-column 41 line 19.

Applicant, further, stated (Remarks, page 10) that the present invention teaches an N:N redundancy scheme. However this does not agree with the specification. Therefore the claim is rejected under 35 U.S.C. 112, first paragraph.

Examiner believes that the claims, given their broad reasonable interpretation, read on the references applied.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SABA TSEGAYE whose telephone number is (571)272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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